Practitioner Notes

What is already known about this topic

A search of the international literature indicated that there is a paucity of rigorous literature and research that points to workload and associated costs for working in online and blended environments.

What this paper adds

This research found that most Australian universities do not have explicit and consistent centralised procedures or guidelines for allocating academic workload which take into account the specific activities associated with online-only or blended learning. Generalised guidelines appeared mostly within collective workplace agreements or implicitly in other policy documents at school, discipline or faculty levels. We found a lack of documented evidence in the Australian university sector which could accurately reflect or even estimate workload associated with teaching online or in blended learning environments. Nor is a rigorous cost-accounting protocol applied at universities to detail the full cost (including staff time) of e-teaching: few universities apply Activity Based Costing (ABC) methods to cost or time-allocate actual teaching tasks/activities. Unsurprisingly, the study found overload due to e-teaching was a significant factor in staff dissatisfaction.

Implications for practice and/or policy

Full results are reported elsewhere (see Tynan et al., 2012). Staff overwhelmingly perceived that their workload allocation did not sufficiently account for the additional workload engendered by e-teaching, whether in fully-online or web-supplemented/blended modes. Consistent with other research (Coates et al, 2009), they believed they had excessive workloads. This study could not quantify work hours associated with e-teaching. However, it provides a new insight in that increased workload is not only the result of increased pressure for research output and administration as is adduced in the Coates et al (2009) study, but is also seen as a direct result of new technology tasks and communication modalities in teaching. The study also points to the inadequacy of Australian university Work Allocation Models (WAMs) to account for academic roles which now routinely include more tasks and constant reskilling. It points to the lack of clarity around institutional WAMs among academics themselves. It also demonstrates that notwithstanding the valourisation of research over teaching (Chalmers, 2011), for these academics, deliberately reducing their teaching time to lower load would negatively impact on student learning. They accepted, albeit reluctantly, they would continue to teach 'out of hours'.

Examining workload models in online and blended teaching

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The report 'Out of hours" released in May 2012 was the culmination of an investigation by four universities into the increasingly perplexing issue of staff workload when associated with the use of technologies, and was funded by the Office of Learning and Teaching. This paper draws heavily on the final Project Report found at http://eprints.usq.edu.au/21319/ and extracts are published here under an agreed non-exclusive licence.

Abstract

Over the past decade, most Australian universities have moved increasingly towards online course delivery for both undergraduate and graduate programs. In almost all cases, elements of online teaching are part of routine teaching loads. Yet detailed and accurate workload data are not readily available. As a result, institutional policies on academic staff workload are often guided more by untested assumptions about reduction of costs per student unit, rather than being evidence-based, with the result that implementation of new technologies for online teaching has resulted in poorly defined workload expectations. While the academics in this study often revealed a limited understanding of their institutional workload formulas, which in Australia are negotiated between management and the national union through their local branches, the costs of various types of teaching delivery have become a critical issue in a time of increasing student numbers, declining funding, pressures to increase quality and introduce minimum standards of teaching and curriculum, and substantial expenditure on technologies to support e-learning. There have been relatively few studies on the costs associated with workload for online teaching, and even fewer on the more ubiquitous 'blended', 'hybrid' or 'flexible' modes, in which face-to-face teaching is supplemented by online resources and activities. With this in mind the research reported here has attempted to answer the following question: What insights currently inform Australian universities about staff workload when teaching online?

Introduction

Diffusion of innovation, according to Rogers (2003), is primarily a process of social change in which human motivations and practices are fundamental. Acceptance and 'diffusion' of online learning has generated a discourse on the sustainability of current uses of ICT in the tertiary sector. In practice, many of the promised efficiencies have proven elusive. Economies from new administrative systems are perhaps real enough. However, it is now clear that the use of ICTs in university teaching is inherently labour-intensive, at least to a

high standard of quality, and under the conditions in which most Australian academics produce digital materials/student communications. Web-based systems, for example, require significant preparation time, both in terms of the hours spent mastering new technologies and the time spent creating teaching materials. As two participants in this study stated:

> In terms of ... working out the technology ... whether I could stream it, capture it, I've forgotten what it was – and I used Help [IT support] to try and work out how to do that. And that was problematic. Just the size of the files and working out all the logistics of how to use it – took a really long time.
>
> And
>
> … then combined with the fact that it just crashes and it's slow and students can't get on, the endless problems on it, I'm sure you know. That really adds to your workload. But also to your frustrations. So it's a lot of hours, but it's a lot of hours spent being very frustrated with it.

This investment ─ in ICTs and teacher time ─ would be tolerable if it actually resulted in a reduction in total teaching hours.

However, the reality is that the use of ICT usually involves an increase in teaching tasks and hours. These include the time reading and responding to emails, hosting chat sessions, and moderating bulletin boards. This has had a consequent impact on staff workloads that is difficult to detail, as there are so many variables. Many staff complain of the increased time required to manage students in the online environment and that teaching time is increasingly '24/7':

> When you work online, you're available – they expect you to be available 24/7…You need to be there for them. But access via electronic communications has made us much more, well, has increased the expectations of students about the availability of staff.

Many staff in the present study see this competing with requirements to undertake research and community service.

Staff members are offered basic training in the use of Learning Management Systems for online teaching, but are not necessarily trained in managing or facilitating online teaching: "And then setting it up with the technologies, I'm sure it could be done more efficiently, but it requires more input from design experts than we are getting". Staff in this study felt strongly that they were unable to manage the work associated with e-teaching. Work was exacerbated when they endeavoured to add more advanced Web 2.0 elements such as blogs:

> I mean, how to quantify this – I mean I'd probably say it adds about 20 per cent. And if you're trying something new – like I was trying with the blogging, that was a huge demand. Because – it was self-created demand – because you've got to keep on top of what you're doing there. You've got to visit their sites, their comments and so on and so forth. I can't blame the university for that. That's my own kind of creativity and desire to produce something that works for the students driving that. But still it takes a lot of time.

Too often, these activities are undertaken out of hours (Tynan, Lee and Barnes, 2008 p. 3558).

Related work

During the 1990s, there was no shortage of predictions from internet enthusiasts, commercial digital developers and technology companies that the advent of digital technologies presaged the end of the traditional university, and radical reduction in the costs of higher education (Cunningham et al. 1998; 2000). John Chambers, the CEO of Cisco Systems, opined in 1996 that e-learning would 'make email look like a rounding error'. Synder, Marginson and Lewis (2007) argue in their summary of 15 case studies on elearning in Australian universities, conducted in the early 2000s, that there are two paradigms which predominate in the deeper penetration of new technologies in education: the 'e-constructivist' (represented by Laurillard's (2002) work) and the 'e-corporate' ─ driven, they argue, by managers and technology boosters, and as a response to demands for reduced costs in education delivery and greater efficiencies. Yet, as they quote: 'Teaching is affected by professional academic requirements and practices, disciplinary cultures, demographics such as the age of staff, institutional staffing policies, conditions of work and the balance of roles between academic and general staff' (p. 190). These factors are rarely considered in the plethora of literature on e-learning in universities, but as Synder, Marginson and Lewis argue (p. 188), there is a need to examine 'people's everyday professional experiences with ICTs' because the effects of new technologies are 'not always benign or transparent'. Everyday professional experiences with ICTs were the focus of the present study, specifically, the workload implications of e-teaching.

Consideration of the effects of new technologies in higher education in respect of teaching workloads, the main focus of this research, requires an understanding of many elements, among them definitions of the various forms of digital technologies used in higher education, cost-benefit analyses, the functionalities of LMS and how academics use them, student use of new technologies, staff perceptions of the technologies they use, workload models, and the changing nature of the academic role generally, including the task profiles of the contemporary academic in teaching online.

Australian universities, like others globally, have progressively required some online element for all courses over the past ten years. For example, only a few universities are without digital infrastructure, namely learning management systems, online data bases, repositories and software such as peer review tools and e-portfolios.. E-learning should be viewed along a continuum, with very little at the 'no digital media' end of the spectrum. Increasingly, the curriculum is incorporating complementary access to materials and planned interactive elements such as the use of discussion boards and forums, virtual classrooms, social media and independent formative and summative feedback and assessment tools such as quiz options. Quite often this is referred to as a blended learning experience whereby campus-based learners may also have a significant online learning component. Distance learners may also experience dual mode options and the incorporation of residential schools alongside their online learning experience. Learners may 'pick and mix' by developing study programs that include both on campus options and online options. Staff are now expected to be familiar with these environments and incorporate them into their teaching, often with no separation of what tasks or duties may involve designing and then facilitating the learning experience of their students. From a pedagogical perspective, interactive and active learning support a constructivist paradigm; from a management or 'corporatist' perspective, to use Snyder,

Marginson and Lewis's (2007) term, blended learning is an efficient response to rising costs and student expectations in a digital world.

Determining valid costs of teaching activities has been a vexed issue at institutional and sector levels that in part reflects the myriad of blurred boundaries that pervade the sector, including cross-subsidisation of research from operational budgets for teaching (Larkins, 2011). Do library costs pertain to taught courses or to the research effort? In what proportions, if they are separated? How are ICT costs to be apportioned? Does the increased use of student mobile devices on-campus have a marked effect on IT/electricity costs? Are these 'online teaching' costs? What proportion of desk top computing for an academic is 'teaching-related'? What administrative? What scholarship? How do academics account transparently for the 40:40:20 'traditional' division of their labour into teaching, research and community service? What are the consequences for costs of the move in many universities to 'teaching only' or 'teaching intensive' positions? Determining the costs of e-learning has made even systematic and authentic Activity-Based Costing (ABC) more of a conundrum.

The major studies on the costs of distance education were made in an earlier age before the blurring of boundaries between 'distance' and online applications now routinely used in campus-based teaching. Key studies in distance education were carried out by scholars including Blaug (1972), Johnstone (1986) and Selby Smith (1975), before the digital revolution of the 90s and ever greater reliance on digital applications in the first decade of the 21st century. Bates (1995) identified five types of cost measures, each with a different purpose and stakeholder perspective on its value, but for him, the measure that provides the best comparison between costs of different technologies is the cost per student study hour (the average cost per hour of 'study contact'), since it accounts for both volume of activity and number of students. However, as can be seen in the data on student study time (James, Krause and Jennings, 2010), this approach is no longer valid, because the calculation of study time is made by academics, and does not mirror the **actual** effort of students. Further, student numbers in a subject are often arbitrarily determined by administrators, who assume a forecast attrition rate, and in any event, at least in Australia, are calculated on an 'Equivalent Full-Time Student Load/Unit', not on 'head count'. The latter would more accurately reflect the effort a teacher must put in for each individual student.

Rumble's (2001) study focused on the development, delivery and administrative costs of fully online education but not for web-supplemented delivery. Bacsich et al.'s 2001 study acknowledged the need to account for all an academic's activities, and provided models for calculating various other expenditures in universities. A decade on, with even more penetration of new technologies in university life, including the costs of support services as student populations become more diverse and therefore require supplemental teaching, their formulas do not reflect the situation in the second decade of the 21st century, although in a more recent article, Rumble (2011) acknowledges the additional workload that development of online teaching requires. As he points out, in the United Kingdom, even though the Transparent Approach to Costing (TRAC) distinguishes between research, teaching and other activities, it fails to sub-analyse teaching costs by **mode** of teaching, nor does it account for blended learning environments. 'Teaching costs' might include but are not limited to information communication technology infrastructure, redevelopment of content, supporting students, managing assessment online and other service costs. Clearly there is a lack of agreement on how such costs should be included and calculated. .

While all Australian universities have at least broad guidelines on workloads, few have comprehensive work allocation models (WAMs) that take account of the variety of task profiles demanded by the use of technologies in teaching. The literature on WAMs is scant and reports of evaluation of their effectiveness even scarcer. The literature mostly provides descriptions of newly developed models (Bitzer 2006; Ringwood et al. 2005) or the development process for WAMs (Bitzer 2006) and associated workload policies (Paewai et al., 2007). It is clearly the case that the range and number of tasks associated with the introduction of online modalities in what are designated class-based programs/units, but are also 'blended', are almost as large as those for online only: see Tynan et al. (2012) for a tabulated comparison of wholly online and blended teaching tasks.

This brief look at related work required of staff in online environments cannot encompass fully the many complex factors contributing to the additional tasks involved in the contemporary teaching role as a result of the increased reliance on technologies. The factors considered above are central to the data reported in this study, on perceptions of the additional work hours required when using technologies. It will be counter-argued, for example, that for most professionals, 24/7 technology has leaked work into non-work time, as media commentary laments (Lee, 2011). Or that academic work is and never was confined to a 40 hour week. However, the authors argue that teaching tasks have increased in quantity, quality and nature, and that workload models rarely account for this. The propositions reported here illuminate the need to re-assess workload models for e-teaching.

Methodology

A Grounded Theory (Martin & Turner, 1986) approach to this project allowed for the generation of data about the impact of technologies on workload when teaching online or in blended modes. Propositions were elaborated from an analysis and understanding of data located in a variety of data sources, including statistical data as appropriate, a literature review, review of grey data and interviews. Drawing upon both qualitative and quantitative approaches, data were analysed using deductive and inductive approaches to develop some propositions. Case studies of the four universities were then developed.

Three of the universities in this project are large, experienced and well-known distance education providers and the other, though smaller, is strongly committed to online modes of learning: one is nationally distributed, two are multi-campus, and all are distance education providers. Each has an established history of quality distributed and distance education experience.

Interviews

To better understand academic staff perceptions of their workload when teaching online, it was critical to seek their voice. The semi-structured interview schedule enabled each interviewer to draw out staff perceptions and ask for clarification and elaboration as required. The interview began with a number of demographic questions (eg, discipline area, years of teaching, what learning management system was used). Two further demographic questions were embedded within the semi-structured interview concerning courses taught and interest in online teaching. The decision was made to include these in the interview schedule as they facilitated interview question flow.

Participants

A purposive sample of 25 academic staff from each of the four universities involved in the project were interviewed: University of New England (UNE) (n=496 Full Time Equivalent

(FTE) staff), Central Queensland University (CQU) (n=309 FTE), University of Southern Queensland (USQ) (n=419 FTE), Australian Catholic University (ACU) (n=498 FTE). The final usable recordings consisted of 88 interviewees.

Participants were a purposive sample of staff with large and small classes, a range of experience in e-teaching, and across the age demographic. The researcher in each institution approached potential interviewees either by telephone or email, to explain the research and request participation. This research was given ethical approval under standard Australian research protocols by the University of New England (Ethics approval number HE10/033).

Analysis techniques

Interview data were analysed using the QSR NVivo 8 qualitative analysis software tool. All interviews were digitally recorded and then transcribed verbatim. Transcripts were checked against the audio recordings for accuracy. An inductive thematic analysis using aspects of Grounded Theory was used as the analytic method. An initial open coding of all transcripts, coding each question from each of the interview transcripts in succession, was conducted. For each question, descriptive and NVivo code names were used to capture the codes generated from this process and a code memo that included the code definition was generated for each code. Only data that were relevant to each question were coded.

This open coding was then checked by a different researcher using the Grounded Theory method of constant comparison. Here data within each code were checked for consistency with the code definition and with other data included at the same code, and then for any inconsistency with data included at different codes. Any coding issues were identified and then discussed with the first researcher and changes made if required. The second researcher then searched for semantic level themes for each question using the thematic analysis process suggested by Braun and Clarke (2006) where different codes were compared and considered for how they might be related to each other. The goal of this process was to combine codes into sub-themes and/or overarching themes.

Findings

What follows is an overview of the main findings of the study, in particular, staff concerns about providing appropriate and detailed feedback to students, changing technologies and adequate infrastructure, the desperate need for professional development and a clear need for improved access to support staff. In all, staff perceptions are that current workload models based on Equivalent Full Time Student Load (EFTSL) are not a clear measure for allocating workload when teaching online. Such workload formulas fail to take into account variable costs, for example, multimedia delivery formats; other support such as educational development, IT equipment (software and hardware); additional staff; staff informal development; opportunity costs (early adopters and innovation); diverse student cohorts; the advent of Work Integrated Learning; committee work; or the plethora of additional 'coordinator tasks' such as 'Study Abroad Convenor'.

Our main findings are, unsurprisingly, that workload associated with online and blended teaching is ill-defined by existing WAMs, and that the numbers and nature of tasks associated with online and blended teaching are poorly understood by management, union negotiating bodies, and staff themselves. As this participant notes

> "Operating in the online environment, I think it actually increases workload. I think

> teaching online and learning online is meant to be – you know, less contact hours. I've found it hugely increases the number of contact hours."

At the same time, staff are perplexed by how they can reduce their teaching hours, without the loss of quality learning, as they believe that students now depend on the interactivity and connectivity and 'service' of web-enabled education. For example:

> "So I find that … one of the Discussion groups that I moderate – a fair bit of it happens on the weekend. So, yeah, my weekend I spend two hours at home moderating a discussion group."

> "The other thing is, because I mainly teach external and online – to facilitate the students' needs I'm online at night, but I also work on-campus during the day. So my hours are effectively doubled."

Furthermore, staff believed that their materials would quickly become irrelevant if they did not update and revise for each 'offering' of their subjects. As one participant stated:

> "I think there is also the need with online to revise more often than there was when we just had printed material. I think the reason is that the world is moving much faster. That students have accessibility to information much easier than they did, say, 20 years ago."

The latter is a particular consideration, in light of the mantra of distance education costing, which has been premised on a five-year lifecycle (Rumble, 2011). E-teaching is not adequately broken into specific components, or implemented transparently and consistently across school areas.

Yet staff are generally supportive, even enthusiastic, about teaching online.

> "The other driver is, well, for us we looked at online learning, in terms of quality of teaching, and I think there's an opportunity to actually improve the quality of our teaching through online learning."

> "It's a vastly different experience and it provides for a far improved learning environment for students. So for me the main driver is the pedagogical one."

However, they have concerns about:

a) appropriate feedback to students

> "Then there are the hours of marking which are never accurate either because you know you end up still having to provide a lot of feedback, which if you use it fully online and type in, that can be quite time consuming. Then if you choose instead to – you'd probably have to have a special program − but if you choose instead to print and pen mark, which is quicker, then you've got to scan it (to send back to students) – which takes longer, so you can't win either way."

b) changing technologies and adequate infrastructure

"Because much of the problems are dealing with technology that doesn't work. And stuff like that. I have no power over that."

"But I can't see how what is allocated to me could ever be, reach reality, unless there was a lot of assistance in terms of making the learning platform user friendly, and making curriculum development, online facilities easier."

c) professional development

"I felt like I needed to keep skilling myself and find other ways to skill myself. And that can't happen in work hours, I think."

"The other reason it takes some time is partly when you're relatively new to it is that there's a lot to learn about the technology. And I found that rather frustrating at the beginning."

d) access to support staff

"But I need IT expertise working closely with me in parallel. And I need academic expertise, like a tutor, like an academic tutor doing my marking, and then I need an IT professional helping me to be, I guess, innovative in that web environment. If it was available. I'm not able to trust the platforms at the moment enough for me to want to be innovative in the web environment. But I'd like to be. But in order for me to do that I'd need both academic help and, assistance like a tutor, and an IT professional, helping."

"I think I would need much more support. I think administrative. I think a lot more high quality administrative support for the actual day-to-day loading of materials and checking of materials."

At times teaching staff are not sure if what they do 'online', in the time that they allocate or over-allocate, is good enough to support quality learning outcomes. Some academics do not have the time to update materials, develop innovative approaches to learning, take up professional development opportunities, or attend to research demands.

"I think is because the model that allocated those hours is often not undertaken in consultation with the academic and this has meant that quite often the workload that's allocated to an academic is allocated on a basis of a perceived understanding of what that academic actually teaches, researches and gets involved with in terms of administration and human engagement."

Recommendations

As technology changes so quickly and as more technology features within learning, workload is a critical consideration, and this research supports the following recommendations:

1. Development of a Workforce plan including clear engagement strategies for staff change management that are cognisant of the time required to learn new applications that have a multidimensional impact on pedagogy, is required;
2. Clear definition of the competencies desired at the institutional level, particularly the organisation's staff profile of teaching, research and or other articulated roles is

needed. This requires a university to consider modes of study carefully, and what staff they need to meet these strategic goals. This is a critical factor for institutions aiming to increase their use of and engagement with technologies;

3. Universities should undertake a thorough analysis of workload and tasks associated with the integration of technologies in teaching, especially in regard to the nature of tasks to be undertaken;
4. Addressing current workload practices against aspirational and pragmatic organisational sustainability is critical in incorporating technologies for learning and teaching (including support) and needs to be noted as a recognised tension which limits possibilities for sustainable innovation and growth. This may be mitigated by re-thinking the models of delivery, pedagogy and the activities associated with e-learning, with a refocus on desired outcomes rather than input models of 'one-size-fits-all'.
5. Above all, WAMs that recognise that headcount, not EFTSL, determines the time staff themselves allocate to teaching activities must be developed, if universities are to be equitable employers.

Conclusion

New technologies have without doubt enhanced opportunities for 21st century students to access education programs outside campus 'boundaries' and timetabled classes. Constructivist pedagogies which emphasise a focus on the individual learner have been adopted by the academics in this study at least, as they use interactive technologies to communicate with students, and encourage student-student interaction. However, new teaching tools and pedagogies have increased both the number and type of teaching tasks undertaken by staff, with a consequent increase in their work hours.

As more new technologies impact on the sector, it is timely to reconsider and audit practices to ensure future innovation and sustainability of work practices. Appropriate agencies should initiate a multi-level audit of teaching time and WAMs. This would accurately identify the roles and responsibilities of teachers, and their actual time using various applications, and their perceived cost-benefit, in order for universities to develop more appropriate yet efficient workload models.

If teaching online is to be sustainable, attention needs to be paid urgently to how staff workloads are constructed. It is no longer possible to work in ways that belong to a transmission era of university teaching. As access and connectivity penetrate deeply into our personal, transactional, work and learning lives, interactivity and constructivist pedagogies must be considered routine, not 'add-ons' in teaching, and must therefore be reflected in prospective workload models which recognise the higher quantum of teaching tasks associated with e-teaching, and students' needs for a teacher to 'be there'.
The sector must therefore acknowledge that 'flexibility' costs, and will impact fixed, variable and opportunity costs.

Staff should be enabled to participate actively in their professional development and have their work recognised and valued within performance assessment, development and review. Institutions should ensure business processes and infrastructure are adequately resourced.

2011 saw a surge of concern about the impact of online purchasing (especially from overseas) on the Australian economy, with bricks and mortar businesses being threatened. Many see this as a precursor to online services supplanting physical service industries, including higher

education; the 2012 interest in MOOCs (Massive Open Online Courses) has revived giddy predictions of the demise of the physical campus, and free/low cost education. Others are more sanguine, envisaging a future where the campus still attracts school leavers seeking a vestigial 'university experience', through a blended education of independent learning online plus some face-to-face interactions, but where the majority of adults transact their learning 'at a distance'. For the moment at least, the blended model remains the predominant 'delivery' mode in higher education, despite an increasing number of fully online programs.

In the Australian university sector, responsibility for developing online materials (whether wholly or web-supplemented) lies with the individual academic: the 'course team approach' used in the UK Open University or UMUC in the US, is increasingly rare, with the dominance of proprietary and open source LMS on the academic desktop. The expectations of academic work have therefore changed considerably as the 'lecture/tutorial' model has been eroded by low student attendance rates and the pressure to use more advanced and student-responsive delivery methods.

Greater use should be made of multimedia resources which have already demonstrated their efficacy for teaching complex/threshold/key concepts, so that individual teachers do not have to develop resources on core concepts in their discipline. However, the work involved in locating these resources, and then contextualising them to particular professional and institutional programs should not be underestimated, and must form part of workload allocations.

For the staff in this study, the struggle to accommodate new technologies and pedagogies in anachronistic workload models has proved nigh-impossible; their determination to provide 'quality teaching' for their students means they are driven to work 'out of hours'.

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